

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/DK2004/000468

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C12N9/10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BIOSIS, FSTA, WPI Data, PAJ, EMBASE, Sequence Search

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	LEEMHUIS H.R.J. ET AL.: "A five-residue amino acid insertion converts cyclodextrin glycosyltransferase into a starch hydrolase with a high exo-specificity" 'Online! 14 April 2003 (2003-04-14), XP002297055 Retrieved from the Internet: URL: http://www.ub.rug.nl/eldoc/dis/science/r.j.leemhuis/c8.pdf 'retrieved on 2004-09-20! cited in the application	1-5
Y	page 117 - page 127 In: "What makes cyclodextrin glycosyltransferase a transglycosylase", H.R.J. Leemhuis, Doctoral thesis, Rijksuniversiteit Groningen, 14-04- 2003 -/--	6-14



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

*** Special categories of cited documents :**

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document but published on or after the international filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

& document member of the same patent family

Date of the actual completion of the international search

20 September 2004

Date of mailing of the international search report

11/10/2004

Name and mailing address of the ISA

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
L	& "RUG - Leemhuis R.J." 'Online! - 14 April 2003 (2003-04-14) Retrieved from the Internet: URL: http://www.ub.rug.nl/eldoc/dis/science/r.j.leemhuis/ 'retrieved on 2004-09-20! L: online publication date -----	
X	WO 99/43793 A (FRANDSEN TORBEN PETER ;BEIER LARS (DK); NOVONORDISK AS (DK); SCHAE) 2 September 1999 (1999-09-02) cited in the application	6-14
Y	page 2, line 8 - page 5, line 21 page 8, line 8 - line 24 page 27 - page 29; claims 1-23,25; figure 4; examples 5,6 -----	1-5
Y	LEEMHUIS H ET AL: "Hydrolysis and transglycosylation reaction specificity of cyclodextrin glycosyltransferases." JOURNAL OF APPLIED GLYCOSCIENCE, vol. 50, no. 2, 2003, pages 263-271, XP008035292 abstract; table 1 -----	6-14
Y	BEIER LARS ET AL: "Conversion of the maltogenic alpha-amylase Novamyl into a CGTase" PROTEIN ENGINEERING, vol. 13, no. 7, July 2000 (2000-07), pages 509-513, XP002296961 ISSN: 0269-2139 cited in the application abstract page 510, left-hand column, paragraph 3 page 511, left-hand column, last paragraph - page 512, right-hand column, last paragraph; figures 1,2 -----	1-5
Y	SVENSSON B: "PROTEIN ENGINEERING IN THE ALPHA-AMYLASE FAMILY: CATALYTIC MECHANISM, SUBSTRATE SPECIFICITY, AND STABILITY" PLANT MOLECULAR BIOLOGY, NIJHOFF PUBLISHERS, DORDRECHT, NL, vol. 25, 1994, pages 141-157, XP000944812 ISSN: 0167-4412 abstract page 143, right-hand column, last paragraph - page 151, right-hand column, paragraph 2 -----	1-5
A	WO 96/33267 A (NOVONORDISK AS ;DIJKHUIZEN LUBBERT (NL); DIJKSTRA BAUKE W (NL); AN) 24 October 1996 (1996-10-24) ----- -/--	

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
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A	TONKOVA ALEXANDRA: "Bacterial cyclodextrin glucanotransferase" ENZYME AND MICROBIAL TECHNOLOGY, vol. 22, no. 8, June 1998 (1998-06), pages 678-686, XP002264957 ISSN: 0141-0229 page 684, right-hand column, paragraph 2 - page 685, left-hand column, paragraph 3; figure 2 -----	1-5
A	SUNG-HO LEE ET AL: "Modulation of cyclizing activity and thermostability of cyclodextrin glucanotransferase and its application as an antistaling enzyme." JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY, vol. 50, 2002, pages 1411-1415, XP002264958 the whole document -----	
A	LEEMHUIS HANS ET AL: "Conversion of cyclodextrin glycosyltransferase into a starch hydrolase by directed evolution: The role of alanine 230 in acceptor subsite +1." BIOCHEMISTRY, vol. 42, no. 24, 24 June 2003 (2003-06-24), pages 7518-7526, XP002296225 ISSN: 0006-2960 cited in the application page 7518, right-hand column, last paragraph; tables 2,3 -----	

INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No

PCT/DK2004/000468

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